AMENDMENTS TO THE SPECIFICATION

IN THE SPECIFICATION:

Page 7

Please amend the paragraph beginning at line 4, through line 12, as indicated below:

The calculation of the amount of discharged particulates includes: downloading data on an amount of intake air and data on an amount of injected fuel: calculating an excess air ratio λ in the given time period Δt on the basis of the amount of intake air and the amount of injected fuel; calculating an excess air ratio frequency $\gamma\ \Delta t$ in, in which the excess air ratio λ is the predetermined value or less in the given time period Δt, on the basis of the excess air ratio λ; and calculating the amount of discharged particulates ~~$Ma\Delta t\ \{= f(\gamma\ \Delta t\}$~~ $\underline{Me\Delta t\ \{= f(\gamma\ \Delta t)\}}$. The foregoing procedures are sequentially executed.

Please amend the paragraph beginning at line 17, through line 30 as indicated below:

Further, the calculation of the amount of burnt particulates includes: downloading a catalyst temperature gt; calculating a filter gas temperature frequency $\beta\Delta t$ in a given time period Δt on the basis of the catalyst temperature gt; correcting the filter temperature frequency $\beta\Delta t$ using a correction factor K which depends upon an index NOx/Soot representing that components of exhaust gas are suitable for burning particulates; calculating a burning velocity coefficient $\alpha\Delta t$ $\{=f(\beta\Delta t)\}$ for the given time period Δt; and calculating an amount $Mb\Delta t$

{$=\alpha\Delta t \times PM_{i-1}$} of burnt particulates on the basis of an amount ~~PM_{i-1}~~ $\underline{Ma_{i-1}}$ of previously accumulated particulates and the burning velocity coefficient $\alpha\Delta t$, the foregoing procedures being conducted in the named order.

Page 11

Please amend the paragraph beginning at line 21, through line 28 as indicated below:

During the forced regeneration control, the following are calculated: the amount Me of discharged particulates in step s1; the amount Mb of burnt particulates in step s2; and the amount Ma of accumulated particulates in step s3. When the amount Ma of accumulated particulates is equal to a predetermined threshold ~~Ma α~~ $\underline{Ma\ \varepsilon}$ in step s4, the control process is advanced to step s5, where the forced regeneration control will be performed in order to forcibly regenerate the filter 22 (e.g. post-injection control will be carried out for a predetermined time period).

Page 12

Please amend the paragraphs beginning at line 21, through page 13, line 2 as indicated below:

~~The amount Ma~~ The amount of $\underline{Ma_i}$ of currently accumulated particulates is added to the ~~amount Ma~~ an amount $\underline{Ma_{i-1}}$ of particulates previously accumulated during a predetermined time period mt, so that a total amount Maptm of particulate is derived.

In step s4, it is checked whether or not the total amount Maptm is above the predetermined threshold ~~Maα~~ $\underline{Ma\ \varepsilon}$. The calculations in steps s1 to s4 are repeated until the

amount Maptm is above the predetermined threshold ~~$Ma\alpha$~~ $\underline{Ma\,\varepsilon}$. The threshold ~~$Ma\alpha$~~ $\underline{Ma\,\varepsilon}$ is determined in order to prevent the filter 22 from being overheated and damaged when particulates thereon are continuously burnt.

When Maptm > ~~$Ma\alpha$~~ $\underline{Ma\,\varepsilon}$, post-fuel injection is conducted for a predetermined time period in step s5 in order to forcibly heat and regenerate the filter 22. Specifically, as shown in Fig. 7, not only an amount INJn of fuel injected (for an injection period Bm) in the main injection J1 but also a fuel injection timing t1 are calculated in accordance with a current state of the engine 2. Further, a post injection amount INJp of fuel to be post-injected (for an injection period Bs) is set to a fixed value at a fuel injection timing t2 after the main fuel injection.

Page 14

Please amend the paragraph beginning at line 13, through line 14 as indicated below:

Referring to Fig. 4(b), the excess air ratio frequency $\gamma\,i$ at the end of calculation in the time period $\Delta\,t$ is assumed to be ~~$\gamma\ \Delta t$~~ $\underline{\lambda\ \Delta\,t}$.

Please amend the paragraphs beginning at line 27, through line 35 as indicated below:

A section a2-2' calculates an amount ~~$Ma\Delta t$~~ $\underline{Me\,\Delta\,t}$ of particulates discharged during the time period Δt, using the formula (i).

$$\cancel{Ma\Delta t}\ \underline{Me\,\Delta\,t} \cancel{= f\,(\gamma\Delta t)}\ \underline{f\,(\lambda\ \Delta\,t)} \qquad \cdots\ \text{(i)}$$

Further, the amount Me of discharged particulates may be derived by multiplying the excess air ratio frequency ~~$\gamma\Delta t$~~ $\underline{\lambda\ \Delta\,t}$ (in the time period Δt) by a predetermined coefficient C.

The coefficient C is experimentally determined. Still further, the amount Me may be derived using a map in which the amount Me of discharged particulates is depicted on the basis of the excess air ratio frequency $\gamma\Delta t$, in place of using the formula (i).

Page 16

Please amend the paragraph beginning at line 23, through line 25 as indicated below:

Alternatively, the amount Mb Δ t may be derived using a map showing the relationship between the ~~particulate burning velocity β Δ t~~ particulate burning velocity coefficient α Δ t and the amount Mb of burnt particulates.

Please amend the formula beginning at line 30 as indicated below:

$$PM_i = PM_{i-1} + (\cancel{Ma\,\Delta t}\ \underline{Me\,\Delta t} - Mb\,\Delta t) \times \Delta t \cdots\cdots \quad (m$$

Please amend the formula beginning at line 36 as indicated below:

$$PM_i = PM_{i-1} + (\cancel{Ma\,\Delta t}\ \underline{Me\,\Delta t} - \alpha\,\Delta t \times PM_{i-1}) \times \Delta t \cdots\cdots \quad (n)$$

Page 17

Please amend the paragraph beginning at line 4, through line 6 as indicated below:

The amount ~~Ma Δ t~~ Me Δ t of particulates discharged in the time period Δ t is calculated in step s10, and the amount Mb Δ t of burnt particulates in the time period Δ t is calculated in step s20.

Please amend the paragraph beginning at line 7, through line 13 as indicated below:

A routine shown in Fig. 9(b) is used for this purpose. In step s11, an intake air amount Qa and a fuel injection amount Qf are downloaded. In step s12, the excess air ratio λ in the time period Δt is calculated on the basis of the downloaded data. In step s13, the excess air ratio frequency γ is calculated by the excess air ratio frequency calculator a2-1' shown in Fig. 8. Finally, the amount ~~Ma Δt~~ Me Δ t $\{= f(\gamma\ \Delta t)\}$ } is calculated in step s14.

Please amend the paragraph beginning at line 23, through line 25 as indicated below:

Following the calculations of ~~Ma Δt~~ Me Δ t and Mb Δ t in steps s10 and s20, the amount PM_i of currently accumulated particulates is calculated using PM_{i-1}, ~~Ma Δt~~ Me Δ t and Mb Δ t in step 30. Refer to Fig. 9(a).

Please amend the paragraph beginning at line 34, through page 18, line 2, as indicated below:

The amount PM_i of accumulated particulates can be accurately detected by calculating the amount ~~Ma~~ Me of particulates discharged in the time period Δt and the amount Mb of particulates burnt in the time period Δt. Therefore, forced regeneration intervals can be properly set up and lengthened, which is effective in preventing the reduction of fuel efficiency.

Page 18

Please amend the paragraph beginning at line 3, through line 6 as indicated below:

Further, the burnt particulate amount calculating unit A2' may derive the filter temperature frequency ~~β~~ βc, where a filter temperature gt is 250℃ or higher for the time period Δt, or may derive an average of the filter temperature frequency ~~β~~ βc in the time period Δt.